

REMARKS

This Amendment is filed in response to the final Office Action dated March 28, 2007 and the personal interview with Examiner Sheehan on June 6, 2007. For the following reasons this application should be allowed and the case passed to issue. No new matter is introduced by this amendment. The amendments to claims 1, 9, and 20 are supported by originally filed claims 2 and 5. Claims 3, 4, and 6 are amended to maintain proper dependency.

Claims 1, 3, 4, and 6-20 are pending in this application. Claims 12-19 are withdrawn from consideration, pursuant to a restriction requirement. Claims 1-11 and 20 have been rejected. Claims 1, 3, 4, 6, 9, and 20 have been amended in this response. Claims 2 and 5 have been canceled in this response.

Interview Summary

Applicants gratefully acknowledge the courtesy of Examiner Sheehan in granting a personal interview with the undersigned and Takashi Saito on June 6, 2007. During the interview, the undersigned proposed claim amendments and explained that the claims were distinguishable over the cited prior art. Examiner Sheehan noted that a Request for Continued Examination (RCE) would probably be required to have the proposed amendment entered because the proposed amendments would raise new considerations.

Claim Rejections Under 35 U.S.C. § 102/103

Claims 1, 7-11, and 20 are rejected under 35 U.S.C. § 102(e) as anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as obvious over Arai et al. (US Pat. No. 6,558,482).

Claims 1-11 and 20 are rejected under 35 U.S.C. § 102(b) as anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as obvious over Kojima et al. (US Pat. No. 6,235,129).

These rejections are traversed, and reconsideration and withdrawal thereof respectfully requested. The following is a comparison between the invention, as claimed, and the cited prior.

An aspect of the invention, per claim 1, is Nd-Fe-B type rare earth magnet alloy for a Nd-Fe-B type anisotropic exchange spring magnet comprising hard magnetic phases and soft magnetic phases. A minimum width of the soft magnetic phases is smaller than or equal to 1 μm ; a minimum distance between the soft magnetic phases is greater than or equal to 0.1 μm . A composition of the Nd-Fe-B type rare earth magnet alloy is expressed by the following chemical formula (1) $\text{Nd}_x\text{Fe}_{100-x-y-z}\text{B}_y\text{V}_z$ (1), where x is within a range from 9 to 11, y is within a range from 5 to 8 and z is within a range from 0 to 2. Chemical formula (1) optionally comprises Co, and if Co is present in the alloy 0.01 to 30 atom% of Fe is replaced with Co.

Another aspect of the invention, per claim 9, is a powder of a Nd-Fe-B type rare earth magnet alloy wherein a composition of the Nd-Fe-B type rare earth magnet alloy is expressed by the following chemical formula (1) $\text{Nd}_x\text{Fe}_{100-x-y-z}\text{B}_y\text{V}_z$ (1), where x is within a range from 9 to 11, y is within a range from 5 to 8 and z is within a range from 0 to 2. Chemical formula (1) optionally comprises Co, and if Co is present in the alloy 0.01 to 30 atom% of Fe is replaced with Co.

Another aspect of the invention, per claim 20, is a Nd-Fe-B type rare earth magnet alloy wherein a composition of the Nd-Fe-B type rare earth magnet alloy is expressed by the following chemical formula (1) $\text{Nd}_x\text{Fe}_{100-x-y-z}\text{B}_y\text{V}_z$ (1), where x is within a range from 9 to 11, y is within a range from 5 to 8 and z is within a range from 0 to 2. Chemical formula (1) optionally comprises Co, and if Co is present in the alloy 0.01 to 30 atom% of Fe is replaced with Co.

The Examiner asserted that Arai et al. teach a Nd-Fe-B type rare earth magnet alloy having a soft magnetic phase and a hard magnetic phase.

The Examiner averred that Kojima et al. teach an Nd-Fe-B rare earth magnet alloy having a soft magnetic phase and a hard magnetic phase with a composition that overlaps the claimed composition.

Arai et al. and Kojima et al. do not anticipate the claimed rare earth magnet alloy and powder because Arai et al. do not disclose a composition of the Nd-Fe-B type rare earth magnet alloy expressed by the following chemical formula (1) $\text{Nd}_x\text{Fe}_{100-x-y-z}\text{B}_y\text{V}_z$ (1), where x is within a range from 9 to 11, y is within a range from 5 to 8 and z is within a range from 0 to 2, wherein chemical formula (1) optionally comprises Co, and if Co is present in the alloy 0.01 to 30 atom% of Fe is replaced with Co, as required by claims 1, 9, and 20.

Kojima et al. disclose that the atomic amount of Co is greater than Fe to provide excellent hard magnetic characteristics (col. 2, line 13-33; col. 8, lines 28-64; and col. 10, lines 17-34). Further, in the Examples of Kojima et al. the atomic ratio of Co:Fe is typically about 72:28. Whereas in the present invention, the maximum atomic ratio of Co:Fe is 30:70. Therefore, Kojima et al. do not disclose the claimed composition. Furthermore, Kojima et al. do not suggest that if Co is present in the alloy 0.01 to 30 atom% of Fe is replaced with Co, as required by claims 1, 9, and 20. To the contrary, Kojima et al. expressly teach away from a composition wherein the atomic amount of Fe is greater than Co.

The factual determination of lack of novelty under 35 U.S.C. § 102 requires the disclosure in a single reference of each element of a claimed invention. *Helifix Ltd. v. Blok-Lok Ltd.*, 208 F.3d 1339, 54 USPQ2d 1299 (Fed. Cir. 2000); *Electro Medical Systems S.A. v. Cooper Life Sciences, Inc.*, 34 F.3d 1048, 32 USPQ2d 1017 (Fed. Cir. 1994); *Hoover Group, Inc. v. Custom Metalcraft, Inc.*, 66 F.3d 399, 36 USPQ2d 1101 (Fed. Cir. 1995); *Minnesota Mining & Manufacturing Co. v. Johnson & Johnson Orthopaedics, Inc.*, 976 F.2d 1559, 24 USPQ2d 1321

(Fed. Cir. 1992); *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051 (Fed. Cir. 1987). Because Arai et al. and Kojima et al. do not disclose a composition of the Nd-Fe-B type rare earth magnet alloy expressed by the following chemical formula (1) $\text{Nd}_x\text{Fe}_{100-x-y-z}\text{B}_y\text{V}_z$ (1), where x is within a range from 9 to 11, y is within a range from 5 to 8 and z is within a range from 0 to 2, wherein chemical formula (1) optionally comprises Co, and if Co is present in the alloy 0.01 to 30 atom% of Fe is replaced with Co, as required by claims 1, 9, and 20, Arai et al. and Kojima et al. do not anticipate claims 1, 9, and 20.

Applicants further submit that Arai et al. and Kojima et al., whether taken alone, or in combination, do not suggest the claimed Nd-Fe-B type rare earth magnet alloys and powder of a Nd-Fe-B type rare earth magnet alloy.

Obviousness can be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge readily available to one of ordinary skill in the art. *In re Kotzab*, 217 F.3d 1365, 1370 55 USPQ2d 1313, 1317 (Fed. Cir. 2000); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). There is no suggestion in Arai et al. or Kojima et al. to modify Arai et al. and/or Kojima et al. to achieve a Nd-Fe-B type rare earth magnet alloy having a composition of the Nd-Fe-B type rare earth magnet alloy expressed by the following chemical formula (1) $\text{Nd}_x\text{Fe}_{100-x-y-z}\text{B}_y\text{V}_z$ (1), where x is within a range from 9 to 11, y is within a range from 5 to 8 and z is within a range from 0 to 2, wherein chemical formula (1) optionally comprises Co, and if Co is present in the alloy 0.01 to 30 atom% of Fe is replaced with Co, as required by claims 1, 9, and 20.

The mere fact that references can be modified does not render the resulting combination obvious unless the prior art also suggests the desirability of the modification. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). Arai et al. and Kojima et al. do not suggest the desirability of modifying the magnet alloys of Arai et al. and Kojima et al. to achieve a Nd-Fe-B type rare earth magnet alloy wherein a composition of the Nd-Fe-B type rare earth magnet alloy is expressed by the following chemical formula (1) $\text{Nd}_x\text{Fe}_{100-x-y-z}\text{B}_y\text{V}_z$ (1), where x is within a range from 9 to 11, y is within a range from 5 to 8 and z is within a range from 0 to 2, wherein chemical formula (1) optionally comprises Co, and if Co is present in the alloy 0.01 to 30 atom% of Fe is replaced with Co, as required by claims 1, 9, and 20.

The requisite motivation to support the ultimate legal conclusion of obviousness under 35 U.S.C. § 103 is not an abstract concept, but must stem from the applied prior art as a whole and realistically impel one having ordinary skill in the art to modify a specific reference in a specific manner to arrive at a specifically claimed invention. *In re Deuel*, 51 F.3d 1552, 34 USPQ2d 1210 (Fed. Cir. 1995); *In re Newell*, 891 F.2d 899, 13 USPQ2d 1248 (Fed. Cir. 1989). Accordingly, the Examiner is charged with the initial burden of identifying a source in the applied prior art for the requisite realistic motivation. *Smiths Industries Medical System v. Vital Signs, Inc.*, 183 F.3d 1347, 51 USPQ2d 1415 (Fed. Cir. 1999); *In re Mayne*, 104 F.3d 1339, 41 USPQ2d 1449 (Fed. Cir. 1997). There is no motivation in Arai et al. and Kojima et al. to modify the magnet alloys of Arai et al. and Kojima et al. to achieve a Nd-Fe-B type rare earth magnet alloy a composition of the Nd-Fe-B type rare earth magnet alloy expressed by the following chemical formula (1) $\text{Nd}_x\text{Fe}_{100-x-y-z}\text{B}_y\text{V}_z$ (1), where x is within a range from 9 to 11, y is within a range from 5 to 8 and z is within a range from 0 to 2, wherein chemical formula (1) optionally

comprises Co, and if Co is present in the alloy 0.01 to 30 atom% of Fe is replaced with Co, as required by claims 1, 9, and 20.

The only teaching of a Nd-Fe-B type rare earth magnet alloy wherein a composition of the Nd-Fe-B type rare earth magnet alloy is expressed by the following chemical formula (1) $\text{Nd}_x\text{Fe}_{100-x-y-z}\text{B}_y\text{V}_z$ (1), where x is within a range from 9 to 11, y is within a range from 5 to 8 and z is within a range from 0 to 2, wherein chemical formula (1) optionally comprises Co, and if Co is present in the alloy 0.01 to 30 atom% of Fe is replaced with Co, as required by claims 1, 9, and 20, is found in Applicants' disclosure. However, the teaching or suggestion to make a claimed combination and the reasonable expectation of success must not be based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

A prior art reference must be considered in its entirety, i.e., as a **whole**, including portions that would lead away from the claimed invention. Such a teaching away from a claimed invention constitutes potent evidence of non-obviousness. See, for example, *In re Bell*, 991 F.2d 781, 26 USPQ2d 1529 (Fed. Cir. 1993); *In re Hedges*, 783 F.2d 1038, 228 USPQ 685 (Fed. Cir. 1986); *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). Kojima et al. teach that the atomic amount of Co is greater than Fe to provide excellent hard magnetic characteristics. Thus, Kojima et al. teach away from the claimed rare earth magnet alloy and powder wherein a claimed chemical formula (1) optionally comprises Co, and if Co is present in the alloy 0.01 to 30 atom% of Fe is replaced with Co, as required by claims 1, 9, and 20.

The dependent claims are allowable for at least the same reasons as the respective independent claims from which they depend and further distinguish the claimed Nd-Fe-B type rare earth magnet alloy and powder of a Nd-Fe-B type rare earth magnet alloy.

Application No.: 10/705,235

In light of the above Amendment and Remarks, this application should be allowed and the case passed to issue. If there are any questions regarding these remarks or the application in general, a telephone call to the undersigned would be appreciated to expedite prosecution of the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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